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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 17

Application Number: 09/915,743
Filing Date: July 26, 2001
Appellant(s): HUFF, GARY S.



Bruce E. Garlick
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/27/2003.

*(1) Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

*(2) Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

*(3) Status of Claims*

The statement of the status of the claims contained in the brief is correct.

*(4) Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

*(5) Summary of Invention*

The summary of invention contained in the brief is correct.

*(6) Issues*

The appellant's statement of the issues in the brief is correct.

*(7) Grouping of Claims*

Appellant's brief includes a statement that claims 1-5, 21, 22, and 30-140 stand together.

*(8) Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

*(9) Prior Art of Record*

| | | |
|---|---|---|
| 6,285,659 | Feuerstraeter et al | 9-2001 |
| 4,417,333 | Cochennec | 11-1983 |

| | | |
|---|---|---|
| 5,991,303 | Mills | 11-1999 |
| 6,198,727 | Wakeley et al | 3-2001 |
| 5,432,775 | Crayford | 7-1995 |

"Physical Layer Link Signaling for 10 Mb/s and 100 Mb/s Auto-Negotiation on Twisted Pair," 26 October 1995, IEEE Std. 802.3u-1995, page 241 and 344

***(10) Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 3, 21, 22, 30-33, 38-41, 63-66, 70-74, 81-84, 87, 88, 90, 94, 96-99, 104-108, 129, 131, 135, and 137 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333).

Regarding claim 1, Feuerstraeter discloses a method for establishing a link between network devices (col. 5, lines 51-55) comprising the steps of: a first network device transmitting a first message advertising a first set of capabilities to a second network device (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); the first network device negotiating with the second network device to determine a first link speed based upon the first set of capabilities (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); the first network device attempting to establish a link at the first link speed with the second network device (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); the first network device failing to establish a link, capable of supporting communications, at the first link speed with the second network device (col. 6, lines 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first network device downgrading the first set of capabilities to a second set of capabilities, wherein the second set of capabilities does not include the first link speed (col. 8, lines 24-55, esp. col. 8, lines 50-52 and col. 9, lines 13-39,

esp. col. 9, lines 37-39); the first network device transmitting a second message advertising the second set of capabilities to the second network device (col. 8, lines 24-55 and col. 9, lines 13-39); the first network device negotiating with the second network device to determine a second link speed that is less than the first link speed (col. 8, lines 24-55, esp. col. 8, lines 50-52 and col. 9, lines 13-39, esp. col. 9, lines 37-39); the first network device and the second network device establishing a link at the second link speed (col. 8, lines 24-55 and col. 9, lines 13-63); and the first network device transmitting data to the second network device via the link at the second link speed (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the

first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 3, referring to claim 1, Feuerstraeter in view of Cochennec discloses that the first set of capabilities includes 100 BASE-T operations (Feuerstraeter: Fig. 1 and col. 6 lines 6-14).

Regarding claim 21, Feuerstraeter discloses a method for operating a pair of local area network devices to establish a link (col. 3, lines 28-35 and col. 5, lines 51-55), the method comprising: the pair of local area network devices determining a set of commonly supported operating parameters by performing auto negotiation operations, the commonly supported operating parameters including a first link speed (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); the pair of local area network devices attempting to establish a link according to the set of commonly supported operating parameters (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); and when the attempt to establish the link, capable of supporting communications, according to the set of commonly supported operating parameters fails: the pair of local area network devices auto negotiating to determine a reduced set of commonly supported operating parameters, the reduced set of commonly supported operating parameters including a second link speed that is less than the first link speed (col. 8, lines 24-55, esp. col. 8, lines 50-52 and col. 9, lines 13-39, esp. col. 9, lines 37-39) where "protocol" is equivalent to a "set of commonly supported operating parameters"; the pair of local area network devices establishing a link according to the reduced set of commonly supported operating parameters at the second link speed (col. 8, lines 24-55 and col. 9, lines 13-63); and the pair of local area network devices exchanging data at the second link speed (col. 8, lines 24-55 and col. 9, lines 13-63).

Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 22, Feuerstraeter discloses a method for operating a pair of local area network devices to establish a link (col. 5, lines 51-55), the method comprising: a first local area network device of the pair of local area network devices advertising a first local area network device set of supported operating parameters (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); a second local area network device of the pair of local area network devices advertising a second local area network device set of supported operating parameters (col. 3, lines 28-35 and

col. 5, line 56-col. 6, line 29); the first local area network device and the second local area network device negotiating a set of commonly supported operating parameters from the first local area network device set of supported operating parameters and the second local area network device set of supported operating parameters (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); the pair of local area network devices attempting to establish a link according to the set of commonly supported operating parameters (col. 3, lines 28-35 and col. 5, line 56-col. 6, line 29); and when the attempt to establish the link, capable of supporting communications, according to the set of commonly supported operating parameters fails: the first local area network device of the pair of local area network devices advertising a reduced first local area network device set of operating parameters (col. 8, lines 24-55, esp. col. 8, lines 50-52 and col. 9, lines 13-39, esp. col. 9, lines 37-39) where "protocol" is equivalent to a "set of commonly supported operating parameters"; the pair of local area network devices determining a reduced set of commonly supported operating parameters from the reduced first local area network device set of operating parameters and the second local area network device set of operating parameters (col. 8, lines 24-55, esp. col. 8, lines 50-52 and col. 9, lines 13-39, esp. col. 9, lines 37-39) where "protocol" is equivalent to a "set of commonly supported operating parameters"; the pair of local area network devices establishing a link according to the reduced set of commonly supported operating parameters (col. 8, lines 24-55 and col. 9, lines 13-63); and the pair of local area network devices exchanging data according to the reduced set of commonly supported operating parameters (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining

a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 30, Feuerstraeter discloses a semiconductor component (network device) that communicates via a wired Ethernet link with a communication device supporting two or more communication rates (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53), the semiconductor component comprising: Ethernet transceiver circuitry that supports communication at a plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry sending a first advertisement including a first indication of at least one of the plurality of rates to the communication device (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry attempts to establish a link with the communication device at a first rate that conforms to the first advertisement, the first rate having

a corresponding counterpart in the two or more communication rates of the communication device (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry failing to establish a link, capable of supporting communications, with the communication device at the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transceiver circuitry sending a second advertisement to the communication device, wherein the second advertisement includes a second indication of at least one of the plurality of rates, the second indication differing from the first indication, the second advertisement constructed based upon the failure of the attempt to establish the link, capable of communications, with the communication device at the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transceiver circuitry establishing a link with the communication device at the second rate that conforms to the second advertisement, the second rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 8, lines 24-55 and col. 9, lines 13-63); and the Ethernet transceiver circuitry communicating data to the communication device via the link at the second rate (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication

can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 31, referring to claim 30, Feuerstraeter in view of Cochennec discloses it is known to use for the wired Ethernet link Category 5 cabling (Feuerstraeter: col. 3, lines 45-52 and col. 6, lines 30-39).

Regarding claim 32, referring to claim 30, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the protocol governing communications should be based upon IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing

communications should be based upon IEEE 802.3-2000 in order to ensure that the system can be implemented in systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 33, referring to claim 32, Feuerstraeter in view of Cochennec discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the advertisements should not conflict with IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 in order to ensure that the advertisements will work on systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 38, referring to claim 30, Feuerstraeter in view of Cochennec discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (Feuerstraeter: col. 6, lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

Regarding claim 39, referring to claim 38, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the first rate (Feuerstraeter: col. 6, lines 50-53)

Regarding claim 40, referring to claim 30, Feuerstraeter in view of Cochennec discloses it is known to have the first indication identify at least the highest rate of the plurality of rates for

a device (col. 6, lines 30-39 and 56-63) where it is obvious that if a 100 BASE computer and a 100 BASE repeater negotiate a 100 BASE connection by an exchange of advertisements that the advertisements would advertise the highest rate, namely 100 Mbps.

Regarding claim 41, referring to claim 40, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the highest rate (col. 6, lines 50-53).

Regarding claim 63, Feuerstraeter discloses a semiconductor component (network device) that communicates via a wired Ethernet link with a communication device supporting two or more communication rates (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53), the semiconductor component comprising: Ethernet transceiver circuitry that supports communication at a plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); Ethernet receiver circuitry that supports communication at the plurality of rates (col. 3, lines 15-19 and col. 6, lines 50-53); auto negotiation circuitry that produces a first advertisement comprising a first indication of at least one of the plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry sending the first advertisement to the communication device (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet receiver circuitry receiving an indication of the two or more communication rates of the communication device(col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry and the Ethernet receiver circuitry attempting and failing to establish a communication link, capable of supporting communications, at a first rate that conforms to the first advertisement and the two or more communication rates of the communication device (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the auto negotiation circuitry producing a second advertisement comprising a second indication of at least one of the plurality

of rates, the second indication differing from the first indication (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter sending the second advertisement to the communication device upon a failure in establishing the communication link at the first rate(col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter circuitry and the Ethernet receiver circuitry establishing a communication link at a second rate that conforms to the second advertisement and the two or more communication rates of the communication device (col. 8, lines 24-55 and col. 9, lines 13-63); and the Ethernet transmitter circuitry and the Ethernet receiver circuitry communicating data with the communication device (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link

at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 64, referring to claim 63, Feuerstraeter in view of Cochennec discloses it is known to use for the wired Ethernet link Category 5 cabling (Feuerstraeter: col. 3, lines 45-52 and col. 6, lines 30-39).

Regarding claim 65, referring to claim 63, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the protocol governing communications should be based upon IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 in order to ensure that the system can be implemented in systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 66, referring to claim 65, Feuerstraeter in view of Cochennec discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the advertisements should not

conflict with IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 in order to ensure that the advertisements will work on systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 70, referring to claim 69, Feuerstraeter in view of Cochennec discloses having the second indication not identify the first rate (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 71, referring to claim 63, Feuerstraeter in view of Cochennec discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (Feuerstraeter: col. 6, lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

Regarding claim 72, referring to claim 71, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the first rate (Feuerstraeter: col. 6, lines 50-53)

Regarding claim 73, referring to claim 63, Feuerstraeter in view of Cochennec discloses it is known to have the first indication identify at least the highest rate of the plurality of rates for a device (Feuerstraeter: col. 6, lines 30-39 and 56-63) where it is obvious that if a 100 BASE computer and a 100 BASE repeater negotiate a 100 BASE connection by an exchange of advertisements that the advertisements would advertise the highest rate, namely 100 Mbps.

Regarding claim 74, referring to claim 73, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the highest rate (Feuerstraeter: col. 6 lines 50-53).

Regarding claim 81, Feuerstraeter discloses a semiconductor component (network device) that communicates via a wired Ethernet link with a communication device supporting two or more communication rates (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53), the semiconductor component comprising: Ethernet transceiver circuitry that supports communication at a plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); Ethernet receiver circuitry that supports communication at the plurality of rates (col. 3, lines 15-19 and col. 6, lines 50-53); auto negotiation circuitry that produces a first indication that identifies the plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry sending the first indication to the communication device via the wired Ethernet link (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry and the Ethernet receiver circuitry attempting and failing to establish a communication link, capable of supporting communications, with the communication device at a first rate consistent with the first indication and having a corresponding counterpart in the two or more rates of the communication device (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the auto negotiation circuitry producing and the Ethernet transmitter circuitry sending a second indication to the communication device upon a failure to establish acceptable communication at the first rate, the second indication identifying at least one of the plurality of rates but not the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter circuitry and the Ethernet receiver circuitry establishing a communication link with the communication device at a second rate consistent with the second indication and having a corresponding counterpart in the two or more rates of the communication device (col. 8, lines 24-55 and col. 9, lines 13-63); and the Ethernet transmitter circuitry and the

Ethernet receiver circuitry communicating data with the communication device (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 82, referring to claim 81, Feuerstraeter in view of Cochennec discloses it is known to use for the wired Ethernet link Category 5 cabling (Feuerstraeter: col. 3, lines 45-52 and col. 6, lines 30-39).

Regarding claim 83, referring to claim 81, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses using a protocol governing communication over the wired

Ethernet link based on IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the protocol governing communications should be based upon IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 in order to ensure that the system can be implemented in systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 84, referring to claim 83, Feuerstraeter in view of Cochennec discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the advertisements should not conflict with IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 in order to ensure that the advertisements will work on systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 87, referring to claim 81, Feuerstraeter in view of Cochennec discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (Feuerstraeter: col. 6, lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

Regarding claim 88, referring to claim 81, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the highest rate of the plurality of rates (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 90, referring to claim 81, Feuerstraeter in view of Cochennec discloses that the second rate is less than the first rate (col. 6, lines 50-53).

Regarding claim 94, referring to claim 81, Feuerstraeter in view of Cochennec discloses that the first rate is a greatest rate of the plurality of rates and the second rate is less than the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 50-53). It is obvious that Feuerstraeter in view of Cochennec negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

Regarding claim 96, Feuerstraeter discloses a wired Ethernet communication system (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53) comprising: a first Ethernet communication device that supports communication at a plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); a second Ethernet communication device coupled to the first

Ethernet communication device via a wired Ethernet link and supporting two or more communication rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first Ethernet communication device producing a first advertisement comprising a first indication of at least one of the plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first Ethernet communication device sending the first advertisement to the second Ethernet communication device (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first Ethernet device and the second Ethernet device attempting and failing to establish a communication link, capable of supporting communication, at a first rate that conforms to the first advertisement, the first rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first Ethernet communication device producing a second advertisement comprising a second indication of at least one of the plurality of rates, the second indication differing from the first indication, the second advertisement constructed based upon a result of the attempt to establish a communication link at the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first Ethernet device sending the second advertisement to the second Ethernet device upon a failure to establish acceptable communication at the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first Ethernet device and the second Ethernet device establishing a communication link at a second rate that conforms to the second advertisement, the second rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 8, lines 24-55 and col. 9, lines 13-63); and the first Ethernet device and the second Ethernet device exchanging data via the communication link at the second rate (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter

possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 97, referring to claim 96, Feuerstraeter in view of Cochennec discloses it is known to use for the wired Ethernet link Category 5 cabling (Feuerstraeter: col. 3, lines 45-52 and col. 6, lines 30-39).

Regarding claim 98, referring to claim 96, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does

not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the protocol governing communications should be based upon IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 in order to ensure that the system can be implemented in systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 99, referring to claim 98, Feuerstraeter in view of Cochennec discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the advertisements should not conflict with IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 in order to ensure that the advertisements will work on systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 104, referring to claim 96, Feuerstraeter in view of Cochennec discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (Feuerstraeter: col. 6, lines 50-53) where it is obvious that if the second indication does

not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

Regarding claim 105, referring to claim 104, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the first rate (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 106, referring to claim 96, Feuerstraeter in view of Cochennec discloses that the first indication identifies at least a highest rate of the plurality of rates (col. 6, lines 30-39 and 56-63) where it is obvious that if a 100 BASE computer and a 100 BASE repeater negotiate a 100 BASE connection by an exchange of advertisements that the advertisements would advertise the highest rate, namely 100 Mbps.

Regarding claim 107, referring to claim 106, Feuerstraeter in view of Cochennec discloses that the second indication does not identify the highest rate (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 108, referring to claim 96, Feuerstraeter in view of Cochennec discloses that the first rate is greater than the second rate (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 129, Feuerstraeter discloses a method for servicing communications between a first wired Ethernet device and a second wired Ethernet device that couple via a wired link, the method comprising (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53): the first wired Ethernet device auto negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first wired Ethernet device and the second wired Ethernet device failing to establish a link, capable of supporting communications, at the first supported

link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first wired Ethernet device auto negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the second supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first wired Ethernet device and the second wired Ethernet device establishing a link at the second supported link speed (col. 8, lines 24-55 and col. 9, lines 13-63); and the first wired Ethernet device and the second wired Ethernet device exchanging data at the second supported link speed (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the

first link speed; and negotiating to determine a second link speed that is less than the first link speed.

Regarding claim 131, referring to claim 129, Feuerstraeter in view of Cochennec discloses that the first supported link speed is one hundred (100) Mbps; and the second supported link speed is ten (10) Mbps (Feuerstraeter: col. 6, lines 50-53) where 100 BASE-T operates at 100 Mbps and 10 BASE-T operates at 10 Mbps.

Regarding claim 135, Feuerstraeter discloses a method for servicing communications between a first wired Ethernet device and a second wired Ethernet device that couple via a wired link (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53), the method comprising: the first wired Ethernet device negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53); the first wired Ethernet device and the second wired Ethernet device failing to establish a link, capable of supporting communication, at the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first wired Ethernet device negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the second supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first wired Ethernet device and the second wired Ethernet device establishing a link at the second supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-63); the first wired Ethernet device and the second wired Ethernet device exchanging data at the second supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-63); and in response to being powered up: the first wired Ethernet device negotiating with the second wired Ethernet device to determine

that link establishment will be attempted at the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; col. 9, lines 13-63; and col. 9, lines 41-46) where being powered up is taken to include being reset such that the network device can be made to start the process of negotiation when it is turned off and turned back on; and the first wired Ethernet device and the second wired Ethernet device attempting to establish a link at the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; col. 9, lines 13-63; and col. 9, lines 41-46). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed. Feuerstraeter in view of Cochennec possibly does not expressly state that in response to a

failure of the link at the second supported link speed: the first wired Ethernet device negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed; and the first wired Ethernet device and the second wired Ethernet device attempting to establish a link at the first supported link speed. Instead Feuerstraeter in view of Cochennec expressly states that negotiation will begin at the first link speed when the port is powered up (Feuerstraeter: col. 9, lines 41-46). It is obvious that a reset function for the auto-negotiation is needed for proper operation of the network device. A reset function allows the system to advertise all possible transmission speeds after the highest speeds have been removed for various reasons. Without a reset function, the device would never be capable of advertising the highest supported speed once it had negotiated to operate at a lower speed, and thus removed the higher speed from the advertisement. For example, when two devices capable of supporting 100 Mbps enter into negotiation upon a link that is capable of supporting only 10 Mbps, the devices will soon realize that 100 Mbps is not possible and agree to communicate using 10 Mbps. This process, as described by Feuerstraeter in view of Cochennec entails removing the 100 Mbps link speed from the advertisements of the devices. Now, if a new link is added to the system that is capable of supporting 100 Mbps, but there is no reset capability for the devices, the two devices will continue to operate using 10 Mbps, since the 100 Mbps has been removed from their advertisements, even though 100 Mbps communication is possible. While Feuerstraeter in view of Cochennec has this reset function tied to a manual reset of the port, it would have been obvious to one of ordinary skill in the art at the time of the invention to make this process automatic such that once communication is established and a link fails (link is removed to be replaced by a new link), the auto-negotiation process is reset such that all

supported link speeds are advertised. Such automation eliminates the need for a network administrator to manually reset the ports of the devices attached to a link which is changed. It would have been obvious to one of ordinary skill in the art at the time of the invention to have, in response to a failure of the link at the second supported link speed, the first wired Ethernet device negotiate with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed in order to eliminate the need for a network administrator to manually reset the ports of each device.

Regarding claim 137, referring to claim 125, Feuerstraeter in view of Cochennec discloses that the first supported link speed is one hundred (100) Mbps; and the second supported link speed is ten (10) Mbps (Feuerstraeter: col. 6, lines 50-53) where 100 BASE-T operates at 100 Mbps and 10 BASE-T operates at 10 Mbps.

Claims 2, 34, 35, 43, 44, 46, 67, 68, 76, 77, 79, 85, 86, 91, 92, 100, 101 109, 110, 112, 130, and 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) as applied to claims 1, 30, 63, 81, 96 above, and further in view of Mills (USPN 5,991,303).

Regarding claims 2, 34, 67, 85, and 100, referring to claims 1, 30, 63, 81, and 96, Feuerstraeter in view of Cochennec possibly does not expressly disclose that the first set of capabilities or the plurality or rates includes 1000 BASE-T operations. Rather Feuerstraeter in view of Cochennec expressly discloses that the first set of capabilities or the plurality of rates includes 100 BASE-T operations (Feuerstraeter: Fig. 1 and col. 6, lines 6-14). However, 1000 BASE-T is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications, as is evidenced by Mills (col. 6, lines 33-48). It would have been

obvious to one of ordinary skill in the art of communication systems to have the first set of capabilities and the plurality of rates includes 1000 BASE-T operations because this would allow the system to support faster communications links than if the systems were limited to 100 BASE-T communications.

Regarding claims 35, 68, 86, and 101, referring to claims 34, 67, 85, and 100, Feuerstraeter in view of Cochennec discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter in view of Cochennec discloses that the plurality of rates comprise 100 BASE-T operations (Feuerstraeter: Fig. 1 and col. 6, lines 6-14) which correlates to 100 Mbps (Feuerstraeter: col. 2, lines 64-66 and col. 3, lines 4-14).

Regarding claim 43, 76, 91, and 109, referring to claims 30, 63, 81, and 96, Feuerstraeter in view of Cochennec discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 3, lines 15-19 and col. 6, lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of Cochennec possibly does not expressly disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6, lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1, lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

Regarding claims 44, 77, 92, and 110, referring to claims 43, 76, 91, and 109, Feuerstraeter in view of Cochennec in further view of Mills discloses that the first rate is greater than the second rate (Feuerstraeter: col. 6, lines 7-14 and 56-67). It is obvious that Feuerstraeter in view of Cochennec in further view of Mills negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

Regarding claims 46, 79, and 112, referring to claims 43, 76, and 109, Feuerstraeter in view of Cochennec in further view of Mills discloses that the first rate is the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 50-53). It is obvious that Feuerstraeter in view of Cochennec in further view of Mills negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

Regarding claims 130 and 136, referring to claims 129 and 135, Feuerstraeter in view of Cochennec possibly does not expressly disclose that the first supported link speed is one thousand (1000) Mbps; and the second supported link speed is one hundred (100) Mbps. Feuerstraeter in view of Cochennec instead discloses that the first supported link speed is one hundred (100) Mbps; and the second supported link speed is ten (10) Mbps (Feuerstraeter: col. 6, lines 50-53). However, 1000 BASE-T is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications, as is evidenced by Mills (col. 6, lines 33-48). It would have been obvious to one of ordinary skill in the art of communication

systems to have the first link speed be 1000 Mbps and the second be 100 Mbps because this would allow the system to support faster communications links than if the systems were limited to only 100 BASE-T (100 Mbps) communications.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) as applied to claim 1 above, and further in view of Wakeley et al (USPN 6,198,727).

Regarding claim 4, Feuerstraeter in view of Cochennec possibly does not expressly disclose that the first set of capabilities includes full-duplex operations. Wakeley discloses, within a system using auto-negotiation, having a first set of capabilities include full-duplex operations (col. 1, lines 18-49). Wakeley does this because it is known to have full-duplex devices in communication systems and thus if the device supports full-duplex communications, the device should advertise these capabilities when negotiating a link. It would have been obvious to one of ordinary skill in the art of communication systems to have the first set of capabilities includes full-duplex operations so that if a device in the communication system supports full-duplex operations it will let other devices know this when negotiating a link.

Regarding claim 5, Feuerstraeter in view of Cochennec possibly does not expressly disclose that the first set of capabilities includes half-duplex operations. Wakeley discloses, within a system using auto-negotiation, having a first set of capabilities include half-duplex operations (col. 1, lines 18-49). Wakeley does this because it is known to have half-duplex devices in communication systems and thus if the device only supports half-duplex communications, the device should advertise these capabilities when negotiating a link. It would have been obvious to one of ordinary skill in the art of communication systems to have the first

set of capabilities includes half-duplex operations so that if a device in the communication system supports half-duplex operations it will let other devices know this when negotiating a link.

Claims 36, 37, 69, 102, and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) as applied to claims 30, 63, and 96 above, and further in view of IEEE 802.3u-1995.

Regarding claims 36, 69, and 102, referring to claims 30, 63, and 96, Feuerstraeter in view of Cochennec possibly does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

Regarding claims 37 and 103, referring to claims 36 and 102, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses having the second indication not identify the first rate (Feuerstraeter: col. 6, lines 50-53).

Claims 42, 75, 89, and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) as applied to claims 30, 63, 81 above, and further in view of Crayford (USPN 5,432,775).

Regarding claims 42, 75, and 89, referring to claims 30, 63, and 81, Feuerstraeter in view of Cochennec possibly does not expressly disclose that the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiate links to higher rates once the previously negotiated link is made (col. 5, lines 10-46; col. 9, lines 10-31; and col. 9, lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

Regarding claim 95, referring to claim 81, Feuerstraeter in view of Cochennec possibly does not expressly disclose that the first rate is less than a greatest rate of the plurality of rates and the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiate links to higher rates once the previously negotiated link is made (col. 5, lines 10-46; col. 9, lines 10-31; and col. 9, lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were

not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the first rate be less than a greatest rate of the plurality of rates and the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

Claims 45, 47, 78, 80, 93, 111, and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) in further view of Mills (USPN 5,991,303) as applied to claims 43, 76, 91, 109 above, and further in view of Crayford (USPN 5,432,775).

Regarding claims 45, 78, 93, and 111, referring to claims 43, 76, 91, 109, Feuerstraeter in view of Cochennec in further view of Mills possibly does not expressly disclose that the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element

could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

Regarding claims 47, 80, and 113, referring to claims 43, 76, and 109, Feuerstraeter in view of Cochennec in further view of Mills possibly does not expressly disclose that the first rate is less than a greatest rate of the plurality of rates and the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the first rate be less than a greatest rate of the plurality of rates and the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

Claims 48-51, 54, 55, 57, 61, 114-117, 120, 121, 123, 127, 132, 134, 138, and 140 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) in further view of IEEE 802.3u-1995.

Regarding claim 48, Feuerstraeter discloses a semiconductor component (network device) that communicates via a wired Ethernet link with a communication device supporting

two or more communication rates (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53), the semiconductor component comprising: Ethernet transceiver circuitry that supports communication at a plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry producing a first indication (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry sending the first indication to the communication device via the wired Ethernet link (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry attempts to establish a communication link at a first rate consistent with the first indication and having a corresponding counterpart in the two or more rates of the communication device (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transceiver circuitry failing to establish the communication link, capable of supporting communication, at the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transceiver circuitry sending a second indication to the communication, the second indication identifying at least one of the plurality of rates but not the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transceiver circuitry establishing a communication link with the communication device at a second rate consistent with the second indication and having a corresponding counterpart in the two or more rates of the communication device (col. 8, lines 24-55 and col. 9, lines 13-63); and the Ethernet transceiver circuitry transmitting data to the communication device at the second rate (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is

evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed. Feuerstraeter in view of Cochennec possibly does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

Regarding claim 49, referring to claim 48, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses it is known to use for the wired Ethernet link Category 5 cabling (Feuerstraeter: col. 3, lines 45-52 and col. 6, lines 30-39).

Regarding claim 50, referring to claim 48, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the protocol governing communications should be based upon IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 in order to ensure that the system can be implemented in systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 51, referring to claim 50, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the advertisements should not conflict with IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure

that the advertisements do not conflict with IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 in order to ensure that the advertisements will work on systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 54, referring to claim 48, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (Feuerstraeter: col. 6, lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

Regarding claim 55, referring to claim 54, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the second indication does not identify the first rate (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 57, referring to claim 48, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the second rate is less than the first rate (Feuerstraeter: col. 6 lines 50-53 and col. 9, lines 35-39).

Regarding claim 61, referring to claim 48, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the first rate is the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 50-53). It is obvious that Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the

fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

Regarding claim 114, Feuerstraeter discloses a wired Ethernet communication system (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53) comprising: a first Ethernet communication device that supports communication at a plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); a second Ethernet communication device coupled to the first Ethernet communication device via a wired Ethernet link and supporting two or more communication rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first Ethernet communication device producing a first indication that identifies at least one of the plurality of rates (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first Ethernet communication device sending the first indication to the second communication device via the wired Ethernet link (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the first Ethernet communication device and the second Ethernet communication device attempting and failing to establish a communication link, capable of supporting communication, at a first rate consistent with the first indication and having a corresponding counterpart in the two or more rates of the communication device (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first Ethernet communication device producing and sending a second indication to the second Ethernet communication device upon a failure to establish acceptable communication at the first rate, the second indication identifying at least one of the plurality of rates but not the first rate (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the first Ethernet communication device and the second Ethernet communication device establishing a communication link at a second rate consistent with the second indication and having a corresponding counterpart in the

two or more rates of the communication device (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); and the first Ethernet communication device and the second Ethernet communication device exchanging data on the established communication link at the second rate (col. 8, lines 24-55 and col. 9, lines 13-63); and the first Ethernet device and the second Ethernet device exchanging data via the communication link at the second rate (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed. Feuerstraeter in view of Cochennec possibly does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be

capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

Regarding claim 115, referring to claim 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses it is known to use for the wired Ethernet link Category 5 cabling (Feuerstraeter: col. 3, lines 45-52 and col. 6, lines 30-39).

Regarding claim 116, referring to claim 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the protocol governing communications should be based upon IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing communications should be based upon IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the protocol governing

communications should be based upon IEEE 802.3-2000 in order to ensure that the system can be implemented in systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 117, referring to claim 116, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (Feuerstraeter: col. 3, lines 45-67 and col. 6, lines 30-39). While Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose the particular version of IEEE 802.3, and thus does not expressly disclose that the advertisements should not conflict with IEEE 802.3-2000, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 since IEEE 802.3-2000 is only the latest version of IEEE 802.3. It would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that the advertisements do not conflict with IEEE 802.3-2000 in order to ensure that the advertisements will work on systems built in accordance with the latest version of IEEE 802.3.

Regarding claim 120, referring to claim 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (Feuerstraeter: col. 6, lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

Regarding claim 121, referring to claim 120, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the second indication does not identify a highest rate of the plurality of rates (Feuerstraeter: col. 6, lines 50-53).

Regarding claim 123, referring to claim 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the second rate is less than the first rate (Feuerstraeter: col. 6 lines 50-53 and col. 9, lines 35-39).

Regarding claim 127, referring to claim 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the first rate is the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (Feuerstraeter: col. 6, lines 50-53). It is obvious that Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

Regarding claim 132, Feuerstraeter discloses a semiconductor component (network device) that communicates via a wired Ethernet link with a communication device (col. 3, lines 10-19; col. 5, lines 51-55; and col. 6, lines 50-53), the semiconductor component comprising: Ethernet transmitter circuitry (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); Ethernet receiver circuitry (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); auto negotiation circuitry operably coupled to the Ethernet transmitter circuitry and to the Ethernet receiver circuitry (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry sending the first advertisement to the communication device via the wired Ethernet link (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry and the Ethernet receiver circuitry attempting and failing to establish a communication link, capable of supporting communications, with the communication device at the first supported link speed (col. 6, line 56-

col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the auto negotiation circuitry generating a second advertisement that includes the second supported link speed but not the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter circuitry sending the second advertisement to the communication device via the wired Ethernet link (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter circuitry and the Ethernet receiver circuitry establishing a communication link with the communication device at the second supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-63); and the Ethernet transmitter circuitry and the Ethernet receiver circuitry communicating data with the communication device at the second supported link speed (col. 8, lines 24-55 and col. 9, lines 13-63). Feuerstraeter possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which

communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed. Feuerstraeter in view of Cochennec possibly does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

Regarding claim 134, referring to claim 132, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the first supported link speed is one hundred (100) Mbps; and the second supported link speed is ten (10) Mbps (Feuerstraeter: col. 6, lines 50-53) where 100 BASE-T operates at 100 Mbps and 10 BASE-T operates at 10 Mbps.

Regarding claim 138, Feuerstraeter discloses a semiconductor component (network device) that communicates via a wired Ethernet link with a communication device (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53), the semiconductor component comprising: Ethernet transmitter circuitry (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); Ethernet receiver circuitry (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); auto negotiation circuitry operably coupled to the Ethernet transmitter circuitry and to the Ethernet receiver circuitry (col.

3, lines 10-35 and col. 5, lines 51-col. 6, line 53), wherein the auto negotiation circuitry generates a first advertisement that includes a first greatest supported link speed (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry sending the first advertisement to the communication device via the wired Ethernet link (col. 3, lines 10-35 and col. 5, lines 51-col. 6, line 53); the Ethernet transmitter circuitry and the Ethernet receiver circuitry attempting and failing to establish a communication link, capable of supporting communications, with the communication device at the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the auto negotiation circuitry generating a second advertisement that includes the second supported link speed but not the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter circuitry sending the second advertisement to the communication device via the wired Ethernet link (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-39); the Ethernet transmitter circuitry and the Ethernet receiver circuitry establishing a communication link with the communication device at the second supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; and col. 9, lines 13-63); and in response to being powered up: the first wired Ethernet device negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; col. 9, lines 13-63; and col. 9, lines 41-46) where being powered up is taken to include being reset such that the network device can be made to start the process of negotiation when it is turned off and turned back on; and the first wired Ethernet device and the second wired Ethernet device attempting to establish a link at the first supported link speed (col. 6, line 56-col. 7, line 2; col. 8, lines 24-55; col. 9, lines 13-63; and col. 9, lines 41-46). Feuerstraeter

possibly does not expressly state that the failure to establish a link capable of supporting communications constitutes a failure to establish a link at the first link speed; however, defining a link to be a connection over which communications can be supported is well-known within the field of telecommunications, as is evidenced by Cochennec (col. 5, lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider failing to establish a link on which communication can occur as failing to establish a link because a communication link is useless, and so should be considered a failure, unless it can communicate information properly. Thus, by Feuerstraeter attempting to establish communication at a first speed over a link; determining the link is not capable of supporting communications (link data contains excessive errors); and renegotiating the link speed to a lower rate at which communication is possible, Feuerstraeter, as broadly interpreted, is attempting to establish a link at the first link speed; failing to establish a link at the first link speed; and negotiating to determine a second link speed that is less than the first link speed. Feuerstraeter in view of Cochennec possibly does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of

rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly. Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly state that in response to a failure of the link at the second supported link speed: the first wired Ethernet device negotiating with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed; and the first wired Ethernet device and the second wired Ethernet device attempting to establish a link at the first supported link speed. Instead Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 expressly states that negotiation will begin at the first link speed when the port is powered up (Feuerstraeter: col. 9, lines 41-46). It is obvious that a reset function for the auto-negotiation is needed for proper operation of the network device. A reset function allows the system to advertise all possible transmission speeds after the highest speeds have been removed for various reasons. Without a reset function, the device would never be capable of advertising the highest supported speed once it had negotiated to operate at a lower speed, and thus removed the higher speed from the advertisement. For example, when two devices capable of supporting 100 Mbps enter into negotiation upon a link that is capable of supporting only 10 Mbps, the devices will soon realize that 100 Mbps is not possible and agree to communicate using 10 Mbps. This process, as described by Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 entails removing the 100 Mbps link speed from the advertisements of the devices. Now, if a new link is added to the system that is capable of supporting 100 Mbps, but there is no reset capability for the devices, the two devices will continue to operate using 10 Mbps, since the 100 Mbps has been removed from their advertisements, even though 100 Mbps communication is possible. While Feuerstraeter in view

of Cochennec in further view of IEEE 802.3u-1995 has this reset function tied to a manual reset of the port, it would have been obvious to one of ordinary skill in the art at the time of the invention to make this process automatic such that once communication is established and a link fails (link is removed to be replaced by a new link), the auto-negotiation process is reset such that all supported link speeds are advertised. Such automation eliminates the need for a network administrator to manually reset the ports of the devices attached to a link which is changed. It would have been obvious to one of ordinary skill in the art at the time of the invention to have, in response to a failure of the link at the second supported link speed, the first wired Ethernet device negotiate with the second wired Ethernet device to determine that link establishment will be attempted at the first supported link speed in order to eliminate the need for a network administrator to manually reset the ports of each device.

Regarding claim 140, referring to claim 138, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the first supported link speed is one hundred (100) Mbps; and the second supported link speed is ten (10) Mbps (Feuerstraeter: col. 6, lines 50-53) where 100 BASE-T operates at 100 Mbps and 10 BASE-T operates at 10 Mbps.

Claims 52, 53, 58, 59, 118, 119, 124, 125, 133, and 139 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) in further view of IEEE 802.3u-1995 as applied to claims 48 and 114 and further in view of Mills (USPN 5,991,303).

Regarding claims 52 and 118, referring to claims 48 and 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose that the plurality of rates includes 1000 BASE-T operations. Rather Feuerstraeter in view of Cochennec

in further view of IEEE 802.3u-1995 expressly discloses that the plurality of rates includes 100 BASE-T operations (Feuerstraeter: Fig. 1 and col. 6, lines 6-14). However, 1000 BASE-T is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications, as is evidenced by Mills (col. 6, lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates include 1000 BASE-T operations because this would allow the system to support faster communications links than if the systems were limited to 100 BASE-T communications.

Regarding claims 53 and 119, referring to claims 52 and 118, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 in further view of Mills discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses that the plurality of rates comprise 100 BASE-T operations (Feuerstraeter: Fig. 1 and col. 6, lines 6-14) which correlates to 100 Mbps (Feuerstraeter: col. 2, lines 64-66 and col. 3, lines 4-14).

Regarding claims 58 and 124, referring to claims 48 and 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 3, lines 15-19 and col. 6, lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6, lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of

communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1, lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

Regarding claims 59 and 125, referring to claims 58 and 124, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 in further view of Mills discloses that the first rate is greater than the second rate (Feuerstraeter: col. 6, lines 7-14 and 56-67). It is obvious that Feuerstraeter in view of Cochennec in further view of Mills negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

Regarding claims 133 and 139, referring to claims 132 and 138, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose that the first supported link speed is one thousand (1000) Mbps; and the second supported link speed is one hundred (100) Mbps. Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 instead discloses that the first supported link speed is one hundred (100) Mbps; and the second supported link speed is ten (10) Mbps (Feuerstraeter: col. 6, lines 50-53). However, 1000 BASE-T is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications, as is evidenced by Mills (col. 6, lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the first link speed be 1000 Mbps and the second be 100 Mbps because this would allow the system to support faster

communications links than if the systems were limited to only 100 BASE-T (100 Mbps) communications.

Claims 56, 62, 122, and 128 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) in further view of IEEE 802.3u-1995 as applied to claims 48 and 114 above, and further in view of Crayford (USPN 5,432,775).

Regarding claims 56 and 122, referring to claims 48 and 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose that the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

Regarding claims 62 and 128, referring to claims 48 and 114, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 possibly does not expressly disclose that the

first rate is less than a greatest rate of the plurality of rates and the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the first rate be less than a greatest rate of the plurality of rates and the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

Claims 60 and 126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) in further view of IEEE 802.3u-1995 in further view of Mills (USPN 5,991,303) as applied to claims 58 and 124 above, and further in view of Crayford (USPN 5,432,775).

Regarding claims 60 and 126, referring to claims 58 and 124, Feuerstraeter in view of Cochennec in further view of IEEE 802.3u-1995 in further view of Mills possibly does not expressly disclose that the second rate is greater than the first rate. Crayford teaches, within a system utilizing auto-negotiation, having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating

links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determine if the connection can be improved in order to save bandwidth.

***(11) Response to Argument***

The Applicant contends that Feuerstraeter does not disclose the limitations of the present invention since Feuerstraeter fails to disclose attempting to establish a link at the first link speed, failing to establish the link, and renegotiating to obtain a lower link speed. Applicant argues that Feuerstraeter's monitoring of the error rate of the data necessitates the establishment of a link. According to Applicant, since Feuerstraeter, apparently, establishes a link, Feuerstraeter cannot disclose attempting to establish a link at the first link speed and failing to establish the link before renegotiating the link speed.

It is Examiner's position that Feuerstraeter's monitoring of the error rate of the data does not necessitate the establishment of a link. In other words, the establishment of a link does not merely depend upon whether or not data can be transmitted upon a connection. Rather, Examiner contends that for a link to be established, viable communication must be possible upon the link. As evidence of Examiner's contention, Examiner offers Cochennec as the secondary reference.

Cochennec discloses that a link can be considered as having failed if the amount of errors upon the link is such that viable communication is not possible (col. 5, lines 18-22). Once viable communication is no longer possible on an established link due to errors, the established link is considered as having failed. Therefore, when a communication path has an excessive error rate from the very start due to the constraints of the cabling, a link cannot be established since viable communication is never possible upon the attempted link. As such, it is the Examiner's position that Feuerstraeter discloses the steps of attempting to establish a link at the first link speed (sending data on the link), failing to establish the link (determining the data has an excessive error rate), and renegotiating to obtain a lower link speed.

From a different perspective, a link can be viewed as not having been established until the process of auto-negotiation is complete. Until the negotiation process is finalized, a link cannot be established since the connection between the two devices is always subject to change. If negotiation is still proceeding, then "the deal is not done". From this perspective, the continued monitoring of the link indicates that auto-negotiation is not finished, but rather it is merely being refined to obtain the best possible result. Again, it is Examiner's position that Feuerstraeter discloses the steps of attempting to establish a link at the first link speed (sending data on the link), failing to establish the link (determining the data has an excessive error rate), and renegotiating to obtain a lower link speed.

Finally, Examiner has not incorrectly characterized Feuerstraeter as the Applicant contends. Instead, Examiner has interpreted Feuerstraeter in a manner different from Applicant, but in a manner consistent with what is known in the art. Feuerstraeter not only solves the same problem in the substantially similar manner as the present invention, Feuerstraeter also contains

all of the limitations under contention except for the semantics of the claims. If this application should issue, then patentability would rest on the wording and interpretation of the claims rather than the functionality of the application.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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